Cruise Report
C-210

Scientific data collected aboard
SSV *Corwith Cramer*

Key West, FL – St. Georges, Bermuda – Falmouth Harbor,
Antigua – Christiansted, St. Croix, USVI
28 March 2007 – 04 May 2007

Sea Education Association
Woods Hole, Massachusetts

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To obtain unpublished data, contact the SEA data archivist:

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Data Description

An extensive oceanographic investigation of the subtropical North Atlantic was conducted during Sea Education Association's cruise C-210, Key West, FL to St. Croix, USVI (via Bermuda and Antigua, see Figure 1, below). Along this cruise track the SSV *Corwith Cramer* provided a platform for the following chemical, biological, physical and geological sampling efforts:

1. Zooplankton net tows (to depths of 100m+), focusing on pteropod and leptocephali distributions: 8 1-meter net tow stations
2. Surface zooplankton net tows, focusing on sargassum, pteropod and leptocephali distributions: 29 Nueston stations.
3. Surface stations measuring temperature, salinity, chlorophyll a, phosphate: 74 surface stations
4. Deep (1000m+) CTD casts measuring temperature, salinity: 27 CTD stations
5. Deep (1000m+) hydrocasts/CTD measuring temperature, salinity, fluorescence, and discrete sampling for water chemistry (oxygen, chlorophyll a, phosphate): 10 hydrocast stations
6. Sediment samples acquired via Shipek and gravity core: 11 sediment stations
7. Continuous monitoring and recording of ocean currents in the upper 600m via ADCP
8. Continuous monitoring and recording of bottom profile via CHIRP

As part of SEA's educational program, undergraduates conduct student-designed oceanographic research during the cruise. Project topics spanned, and integrated, the four "classic" disciplines of oceanography: chemistry, biology, physics and geology (Table 7). The samples and data collected were analyzed onboard as part of investigations of the following lines of scientific inquiry:

1. Pteropod and leptocephali distribution and frequency in the Gulf Stream, S Sargasso and N Sargasso
2. Sargassum distribution, frequency, plant respiration and community respiration rates
3. Physical and chemical tracking of Eighteen Degree Water in the Sub-tropical N Atlantic
4. Physical description of cruise track across spatial scales ranging from meso-scale eddies (a mode-water eddy was documented) to deep water mass identification
5. Comparison of synechococcus cyanobacterial populations at sites of high calcium carbonate precipitation rates near the Great Bahama Bank to the open ocean
6. Lateral transport, grain size distribution and carbonate mineral origin along two geologic transects of the Great Bahama Bank

Student research efforts culminated in a written manuscript and poster presentation to the ship's company. These papers are available on request from SEA.

Giora Proskurowski
Chief Scientist C-210

Figure 1. Cruise track for the SSV Corwith Cramer voyage C-210.

Plotted from hourly position data. Departed from Key West, FL 28March07 and arrived Christiansted, St. Croix, USVI 04May07, with port stops in St. Georges, Bermuda and Falmouth Harbor, Antigua.

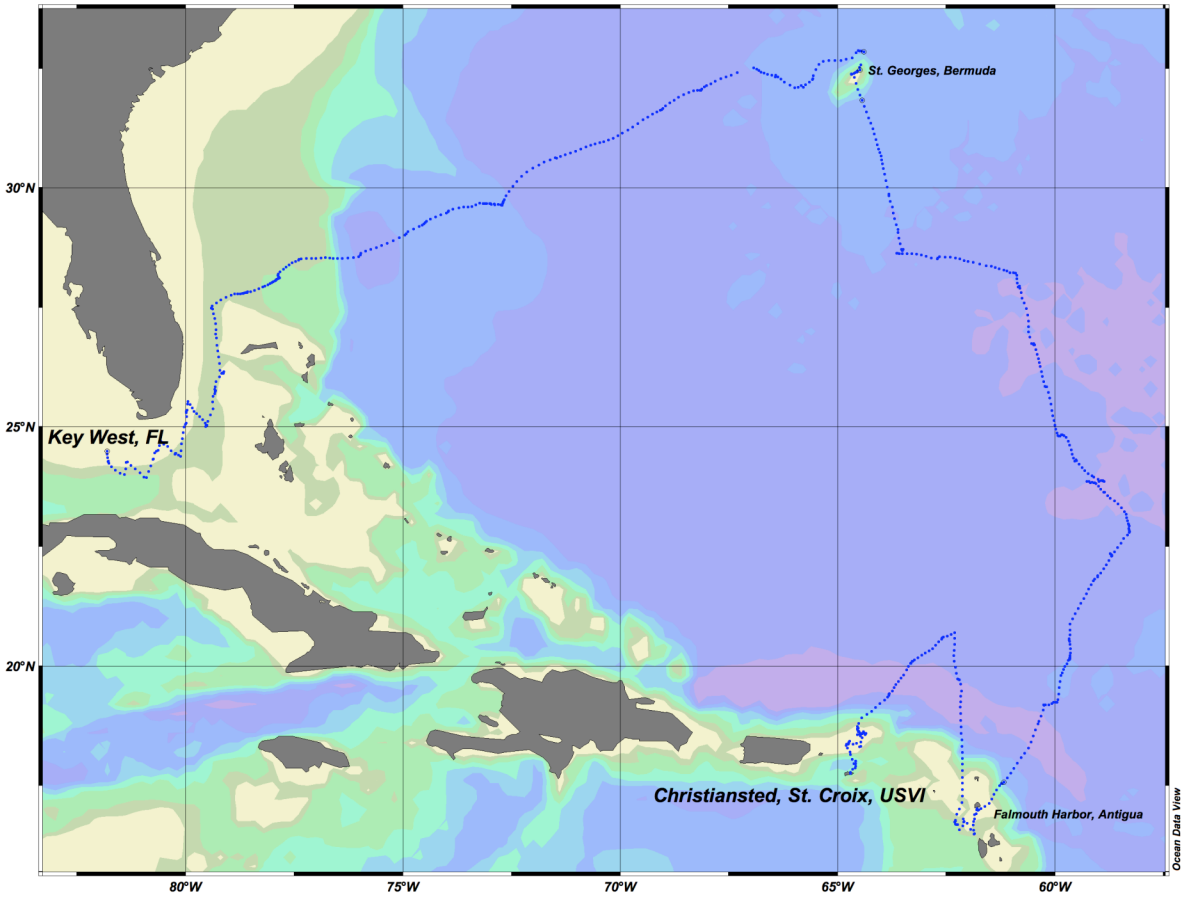


Table 1: Oceanographic Sampling Stations.

HC=hydrocast, CTD= CTD, NT=nueston tow, MN=meter net, SG=Shipek Grab, GC=gravity core, PN=phytoplankton net, BP=bathyphotometer

Station	Type	Date	Time	Lat (N)	Lon (W)	Depth	Locale
C210-001	CTD	30-Mar-07	1644	24°16.1'	81°46.7'	219	South of Key West
C210-002	CTD	31-Mar-07	0925	24°19.4'	80°44.7'	366	Gulf Stream S of Florida Keys
C210-003	CTD	31-Mar-07	1640	24°41.4'	80°33.4'	155	SE of Florida Keys
C210-004	CTD	31-Mar-07	2130	24°26.2'	80°14.2'	884	Florida Straits
C210-004	NT	31-Mar-11	2230	24°26.6'	80°13.5'	0	Florida Straights
C210-005	CTD	1-Apr-07	0955	25°17.4'	79°58.8'	411	Florida Straits
C210-005	HC	1-Apr-11	0955	25°17.4'	79°58.8'	405	Florida Straights
C210-005	NT	1-Apr-11	1038	25°18.6'	79°58.9'	0	Florida straights
C210-006	CTD	1-Apr-07	2215	25°1.7'	79°30.7'	758	W of Great Bahama Bank
C210-006	MN	1-Apr-11	2324	25°1.7'	79°31.5'	150	W of Great Bahama Bank
C210-007-A	SG	2-Apr-11	0756	25°45.0'	79°18.3'	11	Bimini
C210-007-B	SG	2-Apr-11	0830	25°45.32'	79°18.6'	32	Bimini
C210-007-C	SG	2-Apr-11	0840	25°45.4'	79°18.7'	94	Bimini
C210-007-D	SG	2-Apr-11	0900	25°45.6'	79°18.8'	220	Bimini
C210-007-E	SG	2-Apr-11	0914	25°45.9'	79°18.9'	308	Bimini
C210-007-F	SG	2-Apr-11	0940	25°46.3'	79°19.3'	390	Bimini
C210-008	GC	2-Apr-11	1140	25°45.1'	79°18.9'	225	Bimini
C210-009-A	SG	2-Apr-11	1740	26°6.9'	79°7.5'	28	North Great Bahama Bank
C210-009-B	SG	2-Apr-11	1819	26°7.5'	79°7.5'	224	North Great Bahama Bank
C210-009-C	SG	2-Apr-11	2015	26°7.3'	79°7.7'	151	North Great Bahama Bank
C210-009-D	SG	2-Apr-11	2101	26°6.7'	79°10.0'	288	North Great Bahama Bank
C210-010	NT	3-Apr-11	0343	26°55.2'	79°17.8'	0	W of Little Bahama Bank
C210-011	CTD	3-Apr-07	0904	27°27.7'	79°22.8'	489	15 nm NW of Little Bahama Bank
C210-011	NT	3-Apr-11	0947	27°28.7'	79°24.2'	0	15nm N or Little Bahama Bank
C210-012	NT	3-Apr-11	2318	27°49.3'	78°33.8'	0	Sargasso Sea, N of Bahamas
C210-013	CTD	4-Apr-07	1114	28°4.1'	77°55.3'	939	50 nm N of Little Bahama Bank
C210-013	HC	4-Apr-11	1114	28°4.1'	77°55.3'	794	50nm N of Little Bahama Bank
C210-013	NT	4-Apr-11	0857	28°2.0'	77°59.0'	0	50 nm N of Little Bahama Bank
C210-014	CTD	4-Apr-07	2347	28°8.1'	77°51.4'	880	55 nm N of Little Bahama Bank
C210-015	CTD	5-Apr-07	0854	28°28.7'	77°23.9'	851	SW Sargasso Sea
C210-015	NT	5-Apr-11	0950	28°30.0'	77°23.4'	0	SW Sargasso Sea
C210-016	MN	5-Apr-11	2345	28°35.0'	75°58.4'	123	SW Sargasso Sea
C210-016	NT	5-Apr-11	2357	28°35.5'	75°58.4'	0	SW Sargasso Sea
C210-017	CTD	6-Apr-07	0905	29°0.5'	74°57.1'	902	SW Sargasso Sea
C210-017	HC	6-Apr-11	0905	29°0.5'	74°57.1'	891	SW Sargasso Sea
C210-017	NT	6-Apr-11	1016	29°2.6'	74°54.6'	0	SW Sargasso Sea
C210-018	CTD	6-Apr-07	1339	29°12.7'	74°33.7'	1013	SW Sargasso Sea
C210-019	CTD	6-Apr-07	2140	29°29.3'	73°57.4'	848	SW Sargasso Sea
C210-019	NT	6-Apr-11	2240	29°30.3'	73°56.6'	0	SW Sargasso Sea
C210-020	CTD	7-Apr-07	1007	29°40.2'	72°59.8'	990	SW Sargasso Sea
C210-020	NT	7-Apr-11	1120	29°39.8'	72°58.8'	0	SW Sargasso Sea
C210-021	HC	7-Apr-11	2216	29°42.1'	72°41.3'	497	SW Sargasso Sea
C210-021	CTD	7-Apr-07	2047	29°40.7'	72°41.8'	978	SW Sargasso Sea
C210-021	HC	7-Apr-07	2214	29°42.1'	72°41.3'	497	SW Sargasso Sea

Station	Type	Date	Time	Lat (N)	Lon (W)	Depth	Locale
C210-022	CTD	8-Apr-07	1120	30°37.2'	71°28.6'	617	Sargasso Sea
C210-023	CTD	9-Apr-07	1012	31°37.5'	69°4.0'	821	Sargasso Sea
C210-023	HC	9-Apr-11	1012	31°37.5'	69°4.0'	500	Sargasso Sea
C210-024	NT	9-Apr-11	1123	31°38.2'	69°1.9'	0	Sargasso Sea
C210-024	CTD	9-Apr-07	2104	32°2.3'	68°9.3'	989	Sargasso Sea
C210-025	NT	9-Apr-11	2201	32°2.3'	68°8.5'	0	Sargasso Sea
C210-025	CTD	10-Apr-07	1042	32°30.9'	67°4.1'	1018	N Sargasso Sea
C210-025	HC	10-Apr-11	1042	32°30.9'	67°4.1'	496	N Sargasso Sea
C210-026	NT	10-Apr-11	0952	32°29.8'	67°4.5'	0	N Sargasso Sea
C210-026	MN	10-Apr-11	2113	32°19.9'	66°25.4'	120	N Sargasso Sea
C210-027	NT	10-Apr-11	2124	32°20.2'	66°25.4'	0	N Sargasso Sea
C210-027	CTD	11-Apr-07	0859	32°15.8'	65°34.4'	934	N Sargasso Sea, 30nm W of BDA
C210-027	HC	11-Apr-11	0859	32°15.8'	65°34.4'	794	N Sargasso Sea, 30nm W of BDA
C210-028	NT	11-Apr-11	1003	32°16.8'	65°33.8'	0	N Sargasso Sea, W of BDA
C210-028	CTD	11-Apr-07	2119	32°51.9'	64°30.5'	978	N Sargasso Sea, 30nm NE of BDA
C210-029	NT	11-Apr-11	2210	32°51.8'	64°29.4'	0	30nm NE of BDA
C210-030	SG	12-Apr-11	0820	32°26.3'	64°33.5'	42	BDA, NE of St. Georges Channel
C210-031	CTD	16-Apr-07	1027	29°50.4'	63°48.6'	986	60 nm SE of BDA
C210-032	MN	17-Apr-11	0029	28°37.5'	63°36.1'	212	N Sargasso Sea
C210-033	CTD	17-Apr-07	1029	28°31.0'	62°41.4'	1114	Southern Sargasso Sea
C210-033	CTD	18-Apr-07	0905	27°55.6'	60°50.1'	930	S. Sargasso Sea
C210-034	HC	18-Apr-11	0905	26°55.6'	60°50.1'	893	S. Sargasso Sea
C210-034	MN	18-Apr-11	2150	26°42.4'	60°28.8'	140	Sargasso Sea
C210-035	NT	18-Apr-11	2252	26°44.1'	60°28.7'	0	Sargasso Sea
C210-035	CTD	19-Apr-07	0911	25°50.5'	60°13.5'	933	Sargasso Sea
C210-036	NT	19-Apr-11	1013	25°50.4'	60°11.9'	0	Sargasso Sea
C210-036	CTD	19-Apr-07	2158	24°48.1'	59°51.4'	1226	Sargasso Sea
C210-037	NT	20-Apr-11	2341	24°49.4'	59°51.5'	0	S Sargasso Sea
C210-037	CTD	20-Apr-07	0910	24°17.0'	59°31.9'	1064	Southern Sargasso Sea
C210-037	HC	20-Apr-11	0910	24°17.0'	59°31.9'	893	Southern Sargasso Sea
C210-038	NT	20-Apr-11	1040	24°17.9'	59°30.7'	0	Southern Sargasso Sea
C210-038	MN	20-Apr-11	2050	23°51.2'	58°51.5'	147	S Sargasso Sea
C210-039	NT	20-Apr-11	2159	23°52.3'	58°53.4'	0	South Sargasso Sea
C210-040	CTD	21-Apr-07	1000	23°37.6'	58°52.3'	953	Tropical Sargasso Sea
C210-041	CTD	21-Apr-07	2120	22°57.8'	58°17.7'	587	Tropical Sargasso Sea
C210-041	CTD	22-Apr-07	0930	22°18.5'	58°41.3'	3430	Tropical Sargasso Sea
C210-042	NT	22-Apr-11	1233	22°20.2'	58°42.7'	0	Tropical Sargasso Sea
C210-043	MN	22-Apr-11	2111	21°51.5'	59°0.5'	127	S Sargasso Sea
C210-044	NT	22-Apr-11	2331	21°46.6'	59°6.3'	0	Tropical Sargasso Sea
C210-044	CTD	23-Apr-07	1213	20°32.6'	59°40.0'	1570	Tropical Sargasso Sea
C210-045	HC	23-Apr-11	1213	20°32.6'	59°40.0'	1566	Tropical Southern Sargasso Sea
C210-045	CTD	23-Apr-07	2113	20°9.8'	59°39.1'	1567	Tropical North Atlantic
C210-046	NT	23-Apr-11	2235	20°9.1'	59°39.0'	0	Southern Sargasso Sea
C210-047	MN	24-Apr-11	1048	19°14.2'	59°56.4'	705	Tropical North Atlantic
C210-048	NT	24-Apr-11	2109	18°50.1'	60°21.9'	0	Tropical Sargasso Sea
C210-048	CTD	25-Apr-07	0942	17°32.4'	61°12.3'	1425	45 nm NE of Antigua
C210-049	NT	25-Apr-11	1053	17°32.5'	61°13.5'	0	45 nm NE Antigua
C210-050	CTD	28-Apr-07	1124	16°53.6'	61°49.6'	390	5nm S of Antigua
C210-051	CTD	28-Apr-07	1348	16°44.8'	61°51.2'	491	15nm S of Antigua

Station	Type	Date	Time	Lat (N)	Lon (W)	Depth	Locale
C210-052	CTD	28-Apr-07	1711	16°29.2'	61°50.9'	906	9nm NW of Guadeloupe
C210-053	NT	28-Apr-11	2053	16°45.0'	62°5.1'	0	Windward Side of Montserrat
C210-054	NT	29-Apr-11	0359	16°44.2'	62°18.0'	0	Leeward Side of Montserrat
C210-054	CTD	30-Apr-07	0821	19°42.8'	62°11.9'	1880	North Puerto Rico Trench
C210-055	PN	30-Apr-11	0813	19°42.8'	62°11.8'	0.0	N. Puerto Rico Trench
C210-056	MN	30-Apr-11	2136	20°35.4'	62°34.8'	350	Tropical Southern Sargasso Sea
C210-057	CTD	1-May-07	0746	20°6.1'	63°15.8'	1945	Puerto Rico Trench
C210-057	BP	1-May-11	2114	19°25.1'	63°48.4'	140	40nm NE of Anegeda
C210-058	MN	1-May-11	2207	19°24.2'	63°48.7'	350	40nm NE of Anegeda
C210-058	BP	3-May-11	0410	18°19.2'	64°27.7'	140	SW Sir Francis Drake Passage

Table 2: Surface Station Data.

Entries labeled C210-### are from hydrocast surface samples (bottle #13)

Station	Date	Time	Lat (N)	Lon (W)	Temp (°C)	Salinity	PO4 (µM)	Chl-a (ug/L)
SS-001	30-Mar-07	0000	24°15.3'	81°22.0'	25.2	36.2	0.094	0.070
SS-002	30-Mar-07	0612	23°57.8'	80°53.0'	25.4	36.3	0.247	0.119
SS-003	30-Mar-07	1200	24°25.8'	80°39.6'	25.3	36.2	0.104	0.057
SS-004	30-Mar-07	1800	24°38.0'	80°30.0'	25.4	36.2	0.143	0.053
SS-005	30-Mar-07	2300	24°26.7'	80°13.3'	25.6	36.3	0.355	0.067
SS-006	31-Mar-07	0610	25°1.5'	80°1.9'	25.4	36.3	0.237	0.072
C210-005	31-Mar-07	0955	25°17.4'	79°58.8'	25.5	36.3	0.060	0.002
SS-007	31-Mar-07	1910	25°12.4'	79°40.1'	26.0	35.5	0.222	0.055
SS-008	1-Apr-07	0300	25°14.5'	79°25.9'	25.7	36.3	0.134	0.042
SS-009	1-Apr-07	1341	25°54.7'	79°18.9'	25.3	36.3	0.306	0.105
SS-010	1-Apr-07	2127	26°7.3'	79°10.9'	25.1	36.4	0.134	0.068
SS-011	2-Apr-07	0347	26°56.1'	79°18.0'	25.1	36.3	0.000	0.082
SS-012	2-Apr-07	1000	27°28.7'	79°24.2'	25.3	36.4	0.124	0.075
SS-013	2-Apr-07	2015	27°47.4'	78°39.9'	23.9	36.7	0.084	0.024
SS-014	2-Apr-07	2320	27°49.3'	78°33.8'	23.9	36.6	0.045	0.031
SS-015	3-Apr-07	0510	27°56.7'	78°9.6'	23.3	36.8	0.222	0.021
C210-013	3-Apr-07	1114	28°4.1'	77°55.3'	23.5	36.7	0.222	0.022
SS-016	3-Apr-07	1757	28°6.7'	77°50.4'	24.3	36.7	0.025	0.020
SS-017	4-Apr-07	0314	28°14.2'	77°49.6'	23.8	36.7	0.000	0.024
SS-018	4-Apr-07	1016	28°30.7'	77°23.4'	24.3	36.6	0.060	0.027
SS-019	4-Apr-07	1913	28°30.9'	76°30.3'	23.3	36.7	0.143	0.022
SS-020	5-Apr-07	0130	28°39.1'	75°54.2'	22.9	36.8	0.198	0.016
SS-021	5-Apr-07	0635	28°52.1'	75°16.2'	22.9	36.7	0.109	0.026
C210-017	5-Apr-07	1019	29°2.6'	74°54.6'	22.8	36.7	0.237	0.020
SS-022	5-Apr-07	1705	29°17.4'	74°22.7'	22.9	36.7	0.188	0.026
SS-023	5-Apr-07	2320	29°30.8'	73°56.6'	23.5	36.4	0.104	0.021
SS-024	6-Apr-07	0500	29°38.5'	73°19.4'	23.0	36.3	0.286	0.030
SS-025	6-Apr-07	1125	29°39.5'	72°58.5'	21.7	36.6	0.148	0.014
C210-021	6-Apr-07	2300	29°42.1'	72°41.3'	21.9	36.8		0.025
SS-026	7-Apr-07	0815	30°29.5'	71°50.3'	20.8	36.7	0.075	0.046
SS-027	7-Apr-07	1748	30°50.5'	70°48.1'	21.0	36.8	0.143	0.023
SS-028	8-Apr-07	0022	31°3.2'	70°6.9'	20.9	36.8	0.099	0.042
SS-029	8-Apr-07	0556	31°25.1'	69°28.8'	21.5	36.8	0.050	0.029
C210-023	8-Apr-07	1125	31°38.2'	69°1.9'	20.3	36.8	0.247	0.078
SS-030	8-Apr-07	1600	31°54.1'	68°37.3'	21.7	36.3	0.188	0.027
SS-031	8-Apr-07	2200	32°2.5'	68°4.4'	19.0	36.7	0.045	0.257
SS-032	9-Apr-07	0525	32°20.1'	67°30.6'	20.3	36.3	0.104	0.127
C210-025	9-Apr-07	1050	32°31.0'	67°4.0'	20.9	36.8	0.198	0.055
SS-033	10-Apr-07	0200	32°8.6'	66°5.4'	19.3	36.7	0.134	0.205
SS-034	10-Apr-07	0600	32°5.7'	65°47.2'	19.4	36.7	0.129	0.200
C210-027	10-Apr-07	0859	32°15.8'	65°34.4'	19.4	36.7	0.143	0.101

Station	Date	Time	Lat (N)	Lon (W)	Temp (°C)	Salinity	PO4 (µM)	Chl-a (ug/L)
SS-035	10-Apr-07	2210	32°51.8'	64°29.4'	19.6	36.7	0.050	0.135
SS-036	11-Apr-07	0500	32°34.8'	64°27.4'	19.8	36.8	0.050	0.089
SS-037	11-Apr-07	1100	32°24.7'	64°33.2'	20.0	36.8	0.089	0.040
SS-038	14-Apr-07	1600	31°49.6'	64°25.5'	20.3	36.7	0.010	0.073
SS-039	14-Apr-07	2200	31°7.2'	64°9.1'	21.1	36.7	0.019	0.053
SS-040	15-Apr-07	0400	30°35.4'	63°58.9'	21.5	36.4	0.015	0.035
SS-041	15-Apr-07	0900	30°1.9'	63°51.3'	21.2	36.8	0.009	0.023
SS-042	16-Apr-07	0030	28°37.5'	63°36.3'	22.3	36.8	0.018	0.039
SS-043	16-Apr-07	1030	28°31.1'	62°41.4'	23.8	37.8	0.021	0.024
SS-044	16-Apr-07	1700	28°28.8'	62°5.7'	24.4	36.7	0.064	0.024
SS-045	17-Apr-07	0400	28°13.3'	60°57.0'	23.8	36.8	0.000	0.027
C210-033	17-Apr-07	0905	27°55.6'	60°50.1'	22.7	36.9	0.104	0.027
SS-046	17-Apr-07	2200	26°42.7'	60°28.8'	23.2	36.7	0.003	0.025
SS-047	18-Apr-07	0530	26°12.5'	60°19.1'	23.7	36.7	0.026	0.044
SS-048	18-Apr-07	1013	25°50.4'	60°11.9'	23.8	36.6	0.008	0.045
SS-049	18-Apr-07	1700	25°8.9'	60°1.4'	23.4	36.7	0.030	0.025
SS-050	18-Apr-07	2345	24°49.6'	59°51.4'	23.3	36.8	0.027	0.073
SS-051	19-Apr-07	0600	24°30.5'	59°37.1'	25.7	36.5	0.018	0.067
C210-037	19-Apr-07	0930	24°17.2'	59°31.6'	25.8	36.6	0.118	0.054
SS-052	19-Apr-07	2100	23°51.3'	58°51.7'	25.4	36.5	0.026	0.063
SS-053	20-Apr-07	0137	23°49.9'	59°8.7'	25.8	36.5	0.034	0.059
SS-054	20-Apr-07	1015	23°37.7'	58°52.2'	25.7	36.5	0.000	0.071
SS-055	20-Apr-07	1800	23°10.6'	58°21.7'	25.7	36.3	0.014	0.070
SS-056	21-Apr-07	0345	22°45.5'	58°18.4'	25.7	36.4	0.000	0.077
SS-057	21-Apr-07	1238	22°20.4'	58°42.8'	25.8	36.3	0.043	0.066
SS-058	21-Apr-07	1905	22°1.1'	58°53.0'	25.7	35.4	0.048	0.079
SS-059	21-Apr-07	2327	21°46.6'	59°6.3'	25.8	36.3	0.040	0.070
C210-044	22-Apr-07	1213	20°32.6'	59°40.0'	26.9	36.4	0.168	0.078
SS-060	22-Apr-07	2300	20°9.0'	59°38.8'	26.8	36.5	0.039	0.042
SS-061	23-Apr-07	0842	19°26.8'	59°53.9'	26.4	36.4	0.049	0.084
SS-062	23-Apr-07	2120	18°50.1'	60°21.9'	27.1	36.2	0.064	0.060
SS-063	24-Apr-07	0406	18°5.4'	60°46.2'	27.4	36.1	0.029	0.088
SS-064	24-Apr-07	1109	17°32.2'	61°14.0'	27.9	35.9	0.084	0.121

Table 3: Neuston Net Data.

Station Locations are as in Table 1.

Station	Tow Length (m)	Temp (°C)	Salinity (PSU)	Zooplankton Biomass (ml)	Zooplankton Density (ml/m^2)	Plastic Pieces	Plastic Pellets	Tar	Lepto-cephali	Halo-bates	Moon Phase (%)
C210-004	555	25.6	36.3	6.0	0.0108						90
C210-005	741	25.5	36.3	7.8	0.0105						90
C210-010	1296	25.0	36.3	11.9	0.0092		4				99
C210-011	1852	25.3	36.4	4.0	0.0022	3					100
C210-012	2120	23.9	36.6	5.0	0.0024		21			1	100
C210-013	1852	23.2	36.8	12.1	0.0065	37					99
C210-015	1852	24.3	36.6	0.6	0.0003	1					97
C210-016	1852	23.0	36.8	9.0	0.0049	1	11	1	1		93
C210-017	2037	22.8	36.7	3.0	0.0015	9	5				93
C210-019	1111	23	36.8	5	0.0045				2		95
C210-020	1296	21.7	36.6	19.0	0.0147	6					88
C210-023	4259	20.3	36.8	3.0	0.0007		5				
C210-024	1852	19.0	36.7	22.0	0.0119		1				72
C210-025	1852	20.8	36.8	5.2	0.0028	12					63
C210-026	1852	19.7	36.8	67.0	0.0362	1					63
C210-027	2782	19.4	36.7	2.6	0.0009						53
C210-028	1700	19.6	36.7	14.0	0.0082	2			4		42
C210-034	2240	23.1	36.8	3.8	0.0017	15			2		0
C210-035	900	23.8	36.6	4.2	0.0047	16					2
C210-036	2142	23.4	36.8	25.0	0.0117	243			12	1	6
C210-037	1895	25.9	36.6	0.2	0.0001	36					6
C210-038	1930	25.4	36.5	5.5	0.0028	28	1	1	1	18	6
C210-041	1383	25.8	36.3	2.0	0.0014	12				2	22
C210-043	506	25.8	36.3	14.5	0.0287	1				7	22
C210-045	1852	26.8	36.5	18.0	0.0097	2		1	6	2	32
C210-047	1967	27.1	36.2	8.5	0.0043	3			1	18	42
C210-048	1839	27.9	35.9	9.5	0.0052	4				1	52
C210-052	2251	27.9	35.8	6.0	0.0027					3	80
C210-053	1125	27.8	36.0	19.4	0.0172					1	80

Table 4: Meter Net Data.

Station Locations are as in Table 1. All tows employed a 1-m diameter (0.785m^2), 335 µm mesh net.

Station	Tow depth (m)	Tow volume (m^3)	Zooplankton biomass (ml)	Zooplankton density (ml/m^3)
C210-006	150	2229	94	0.042
C210-016	123	2224	70	0.031
C210-026	120	1742	260	0.149
C210-031	212	1812	54	0.030
C210-034	140	2145	41	0.019
C210-038	147	2268	46	0.020
C210-042	127	2253	54	0.024
C210-046	705	4792	58	0.012
C210-055	350	2440	21	0.009
C210-057	350	2255	27	0.012

Table 5: Sediment Grain Size Data.

Station Locations are as in Table 1.

	Grain size fraction (% sediment retained on mesh sieves sizes in mm)							
	% 2000	%1000	%500	%250	%125	%<63		
Station	µm	µm	µm	µm	µm	%63 µm	µm est	total %
C210-007-A	1.7	7.7	27.0	22.8	27.5	9.0	4.3	95.7
C210-007-B	1.0	0.5	4.1	6.6	2.9	1.5	4.9	77.3
C210-007-C	14.2	25.2	38.8	10.0	5.6	1.5	3.0	98.3
C210-007-D	0.2	1.4	13.8	9.8	36.1	17.1	15.0	93.4
C210-007-E	0.2	1.3	8.0	17.4	28.8	13.0	30.0	98.7
C210-007-F								
C210-009-A	7.0	12.7	34.2	16.5	11.7	1.0	16.9	100.0
C210-009-B	13.4	13.5	5.8	4.9	24.5	26.0	22.9	100.0
C210-009-C								
C210-009-D								
C210-029	8.5	35.4	44.0	1.8	1.3	0.6	8.0	99.6

Table 6: Hydrocast Station Data.

Station Locations are as in Table 1.

Station	Bottle	Depth (m)	Temp (°C)	Salinity (PSU)	Density (σ)	O_2 (mL/L)	PO_4 (µM)	Chl a (mg/L)
C210-005	13	0	25.5	36.3		5.66	0.060	0.001
C210-005	12	25	25.4	36.2	24.1	5.18	0.050	0.059
C210-005	10	98	23.6	36.6	25.0	4.92	0.281	0.068
C210-005	9	99	23.4	36.6	25.0	4.9	0.173	0.245
C210-005	8	124	21.0	36.5	25.6	5.29	0.119	0.164
C210-005	7	149	19.9	36.5	25.9	5.2	0.286	0.082
C210-005	6	200	18.5	36.4	26.2	3.97	0.729	0.022
C210-005	5	249	11.6	35.5	27.1	3.49	1.650	0.006
C210-005	3	403	6.8	34.9	27.4	3.33	2.148	0.001
C210-005	2	405	6.8	34.9	27.4	3.37	1.871	0.001
C210-005	1	405	6.8	34.9	27.4	3.4	2.192	0.001
C210-013	13	0	23.5	36.7		5.01	0.222	0.022
C210-013	12	99	21.4	36.8	25.7	4.93	0.025	0.036
C210-013	11	199	18.7	36.6	26.4	4.89	0.390	0.010
C210-013	10	224	18.6	36.6	26.4	5.01	0.271	0.001
C210-013	9	248	18.5	36.6	26.4	4.99	0.321	0.001
C210-013	8	273	18.4	36.6	26.4	5.13	0.237	0.001
C210-013	7	298	18.3	36.6	26.4	5.12	0.577	0.001
C210-013	6	323	18.3	36.6	26.4	5.23	0.331	0.001
C210-013	5	348	18.2	36.6	26.5	5.02	0.173	0.001
C210-013	4	372	18.0	36.6	26.5	5	0.326	0.001
C210-013	3	398	17.5	36.5	26.5	4.7	0.528	0.002
C210-013	2	497	15.3	36.1	26.8	4.49	0.754	0.002
C210-013	1	794	8.2	35.2	27.4	4.18	1.788	0.002
C210-017	13	0	22.8	36.7		5.07	0.237	0.020
C210-017	12	50	22.5	36.7	25.4	4.98	0.119	0.027
C210-017	9	348	18.4	36.6	26.4	4.83	0.217	0.000
C210-017	8	372	18.4	36.6	26.4	4.88	0.291	0.000
C210-017	7	397	18.3	36.6	26.4	5	0.242	0.000
C210-017	6	422	18.2	36.6	26.4	5.13	0.311	0.000
C210-017	5	447	18.1	36.5	26.5	5.07	0.262	0.001
C210-017	4	472	17.9	36.5	26.5	4.87	0.321	0.000
C210-017	3	596	16.3	36.2	26.7	4.43	0.718	0.001
C210-017	2	794	11.9	35.6	27.1	4.09	1.277	0.001
C210-017	1	891	9.6	35.3	27.3	4.06	1.465	0.001
C210-021	13	0	21.9	36.8		4.06		0.025
C210-021	12	50	21.7	36.8	25.7	5.3	0.188	0.026
C210-021	11	99	21.2	36.8	25.8	5.19	0.178	0.024
C210-021	10	198	19.4	36.7	26.2	5.36	0.227	0.005
C210-021	9	298	18.4	36.6	26.4	4.9	0.267	0.000
C210-021	8	347	18.3	36.6	26.4	4.94	0.286	0.000
C210-021	7	397	18.1	36.6	26.5	5.27	0.311	0.000

Station	Bottle	Depth (m)	Temp (°C)	Salinity (PSU)	Density (σ)	O_2 (mL/L)	PO_4 (µM)	Chl a (mg/L)
C210-021	4	422	17.9	36.5	26.5	4.78	0.376	0.000
C210-021	3	447	17.8	36.5	26.5	4.78		
C210-021	2	472	17.5	36.5	26.5	4.87		
C210-021	1	497	17.1	36.4	26.6	4.5		
C210-023	13	0	20.3	36.8		5.39	0.247	0.078
C210-023	12	49	20.3	36.8	26.1	5.38	0.143	0.087
C210-023	11	99	19.5	36.7	26.2	5.24	0.281	0.183
C210-023	10	199	18.7	36.7	26.4	5.45	0.207	0.022
C210-023	9	298	18.3	36.6	26.4	4.93	0.286	0.030
C210-023	8	347	18.2	36.6	26.5	5.45	0.449	0.007
C210-023	7	398	18.1	36.6	26.5	5.27	0.404	0.006
C210-023	6	423	18.0	36.6	26.5	5.00	0.710	
C210-023	5	423	18.0	36.6	26.5	5.09	0.445	
C210-023	4	423	18.0	36.6	26.5	5.09	0.252	
C210-023	3	447	17.9	36.6	26.5	4.95		
C210-023	2	472	17.6	36.5	26.5	4.92		
C210-023	1	500	17.1	36.4	26.6	4.77		
C210-025	13	0	20.9	36.8		5.36	0.198	0.055
C210-025	12	50	20.8	36.8	25.9	5.36	0.212	0.066
C210-025	11	99	20.4	36.8	26.0			
C210-025	10	198	18.8	36.6	26.3	4.82	0.340	0.009
C210-025	9	298	18.3	36.6	26.4	5.06	0.380	0.001
C210-025	8	347	18.2	36.6	26.5	5.11	0.331	0.001
C210-025	7	397	17.9	36.5	26.5	4.89		
C210-025	6	421	17.8	36.5	26.5	4.69		
C210-025	5	422	17.8	36.5	26.5	4.88	0.395	0.002
C210-025	4	422	17.8	36.5	26.5	4.95	0.366	
C210-025	3	447	17.6	36.5	26.5	4.75		
C210-025	2	471	17.3	36.4	26.6	4.62		
C210-025	1	496	16.9	36.4	26.6	4.55		
C210-027	13	0	19.5	36.7		5.60	0.143	0.101
C210-027	12	100	18.9	36.7	26.3	5.37	0.193	0.107
C210-027	11	149	18.5	36.6	26.4	5.25	0.242	0.016
C210-027	10	248	18.3	36.6	26.4	5.19	0.335	0.004
C210-027	9	319	18.2	36.6	26.5	5.26	0.675	0.006
C210-027	8	356	17.9	36.5	26.5	4.84	0.951	0.003
C210-027	7	358	17.9	36.5	26.5	4.87		
C210-027	6	397	17.6	36.5	26.5	4.78		
C210-027	5	397	17.6	36.5	26.5	4.88		
C210-027	4	496	16.3	36.2	26.7	4.34	0.762	
C210-027	3	595	13.8	35.8	26.9	4.10		
C210-027	2	694	11.4	35.5	27.1	3.79		
C210-027	1	794	9.4	35.3	27.3	4.86		
C210-033	13	0	22.7	36.9		5.12	0.104	0.027
C210-033	12	49	22.1	36.9	25.6	5.30	0.168	0.035

Station	Bottle	Depth (m)	Temp (°C)	Salinity (PSU)	Density (σ)	O_2 (mL/L)	PO_4 (μM)	Chl a (mg/L)
C210-033	11	99	21.6	36.8	25.7	5.36	0.059	0.046
C210-033	10	200	20.3	36.8	26.0	5.20	0.069	0.050
C210-033	9	298	18.4	36.6	26.4	5.02	0.465	0.049
C210-033	8	348	18.2	36.6	26.4	4.80	0.425	
C210-033	7	393	18.0	36.6	26.5	4.98	0.302	
C210-033	6	447	17.7	36.5	26.5	4.94	0.312	
C210-033	5	495	17.1	36.4	26.6	4.70	0.445	
C210-033	4	595	15.1	36.1	26.8	4.52	0.703	
C210-033	3	694	13.1	35.8	27.0	4.22	1.099	
C210-033	2	793	10.9	35.5	27.2	3.96	1.341	
C210-033	1	893	9.2	35.3	27.3	3.85	1.718	
C210-037	13	0	25.8	36.6		3.15	0.118	0.054
C210-037	12	49	25.1	36.5	24.4	2.98	0.208	0.078
C210-037	11	100	24.8	37.0	24.9	3.08	0.123	0.101
C210-037	10	197	20.0	36.8	26.1	3.80	0.193	0.057
C210-037	9	248	18.8	36.6	26.3	2.99	0.282	0.051
C210-037	8	299	18.3	36.6	26.4	4.25	0.292	0.049
C210-037	7	346	17.9	36.5	26.5	2.89	0.351	
C210-037	6	396	17.1	36.4	26.6	3.09	0.510	
C210-037	5	497	15.2	36.1	26.8	3.17	0.881	
C210-037	4	596	13.3	35.8	26.9	2.38	1.084	
C210-037	3	694	11.3	35.5	27.1	2.25	1.411	
C210-037	2	794	9.3	35.3	27.3	2.11	1.688	
C210-037	1	893	7.4	35.0	27.4	2.02	1.837	
C210-044	13	0	26.9	36.4		4.72	0.168	0.078
C210-044	12	100	25.4	36.8	24.6	5.20	0.059	0.117
C210-044	11	198	21.0	37.0	26.0	4.64	0.173	0.022
C210-044	10	298	17.6	36.4	26.5	4.35	0.520	0.065
C210-044	9	348	16.7	36.3	26.6	4.26	0.742	
C210-044	8	397	15.7	36.1	26.7	4.00	0.807	
C210-044	7	496	13.2	35.7	26.9	3.64	1.208	
C210-044	6	596	10.5	35.3	27.1	3.19	1.678	
C210-044	5	794	8.2	35.1	27.3	3.59	1.980	
C210-044	4	992	5.9	34.9	27.5	4.15	2.049	
C210-044	3	1189	5.4	35.0	27.6	5.03	1.881	
C210-044	2	1388	4.8	35.0	27.7	5.97	1.465	
C210-044	1	1566	4.3	35.0	27.8	6.20	1.332	

Figure 2. Plot of surface temperature and fluorescence.

Note decreased temperatures and highly increased fluorescence at ~32°N 68°W, before the Bermuda rise, indicating the presence, and biological impact, of a mode-water eddy.

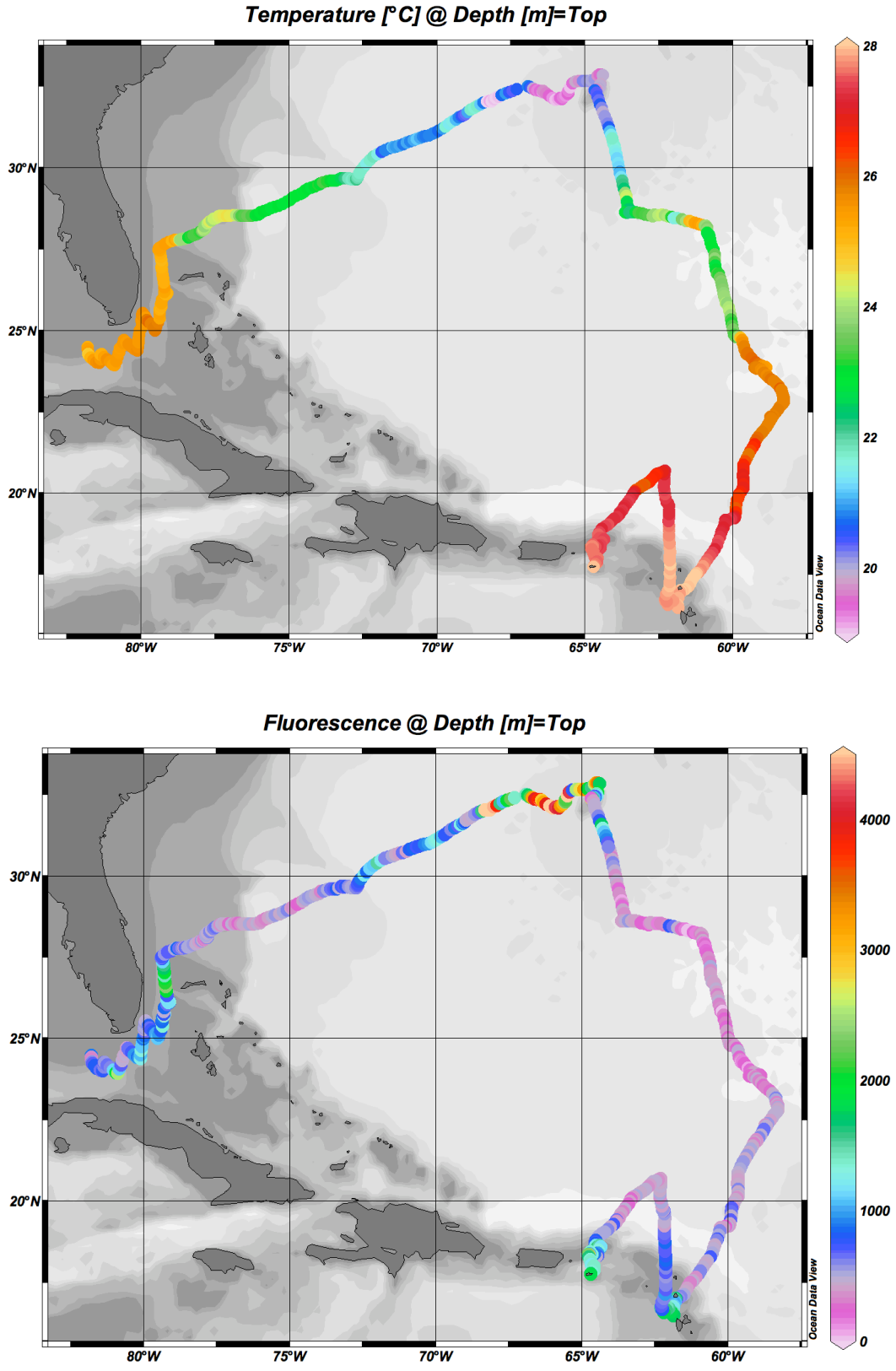
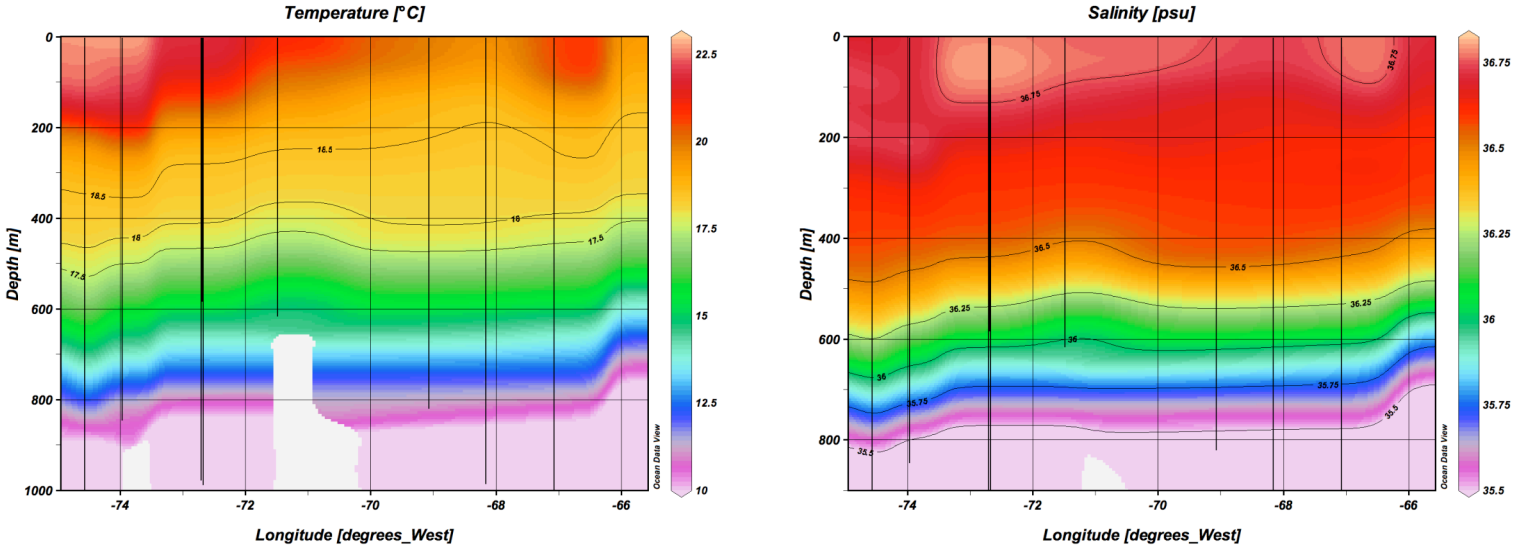
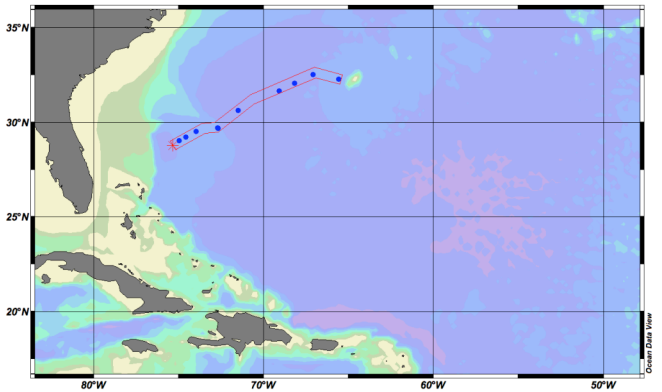


Figure 3. Temperature, salinity, density Eastern Sargasso.

Data from transect from the North American Continental Slope to Bermuda. Note the upwelling seasonal thermocline and downwelling main thermocline at 68°W indicating a mode-water eddy.





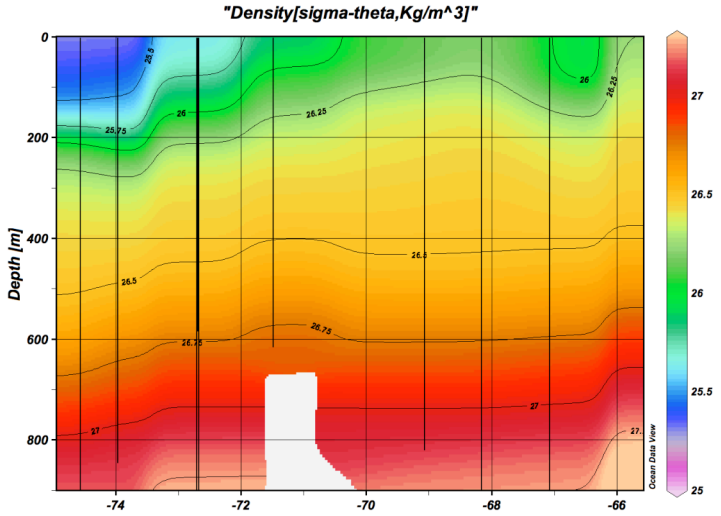


Figure 4. Temperature and salinity data from Bermuda to Antigua.
Note the thinning of the layer of Eighteen Degree Water towards the south.

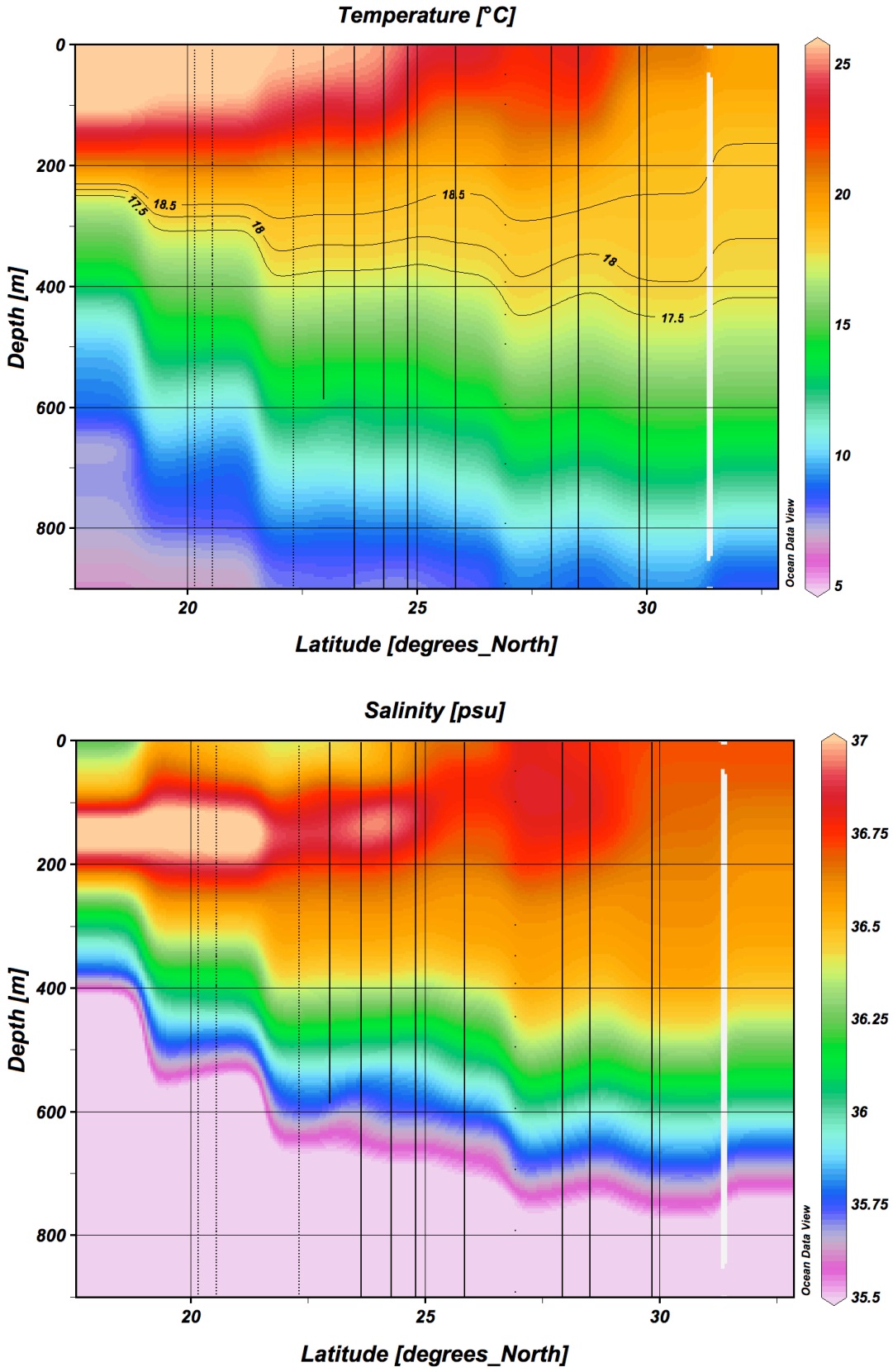


Figure 5. ADCP data along the transect from the North American Continental Shelf to Bermuda.

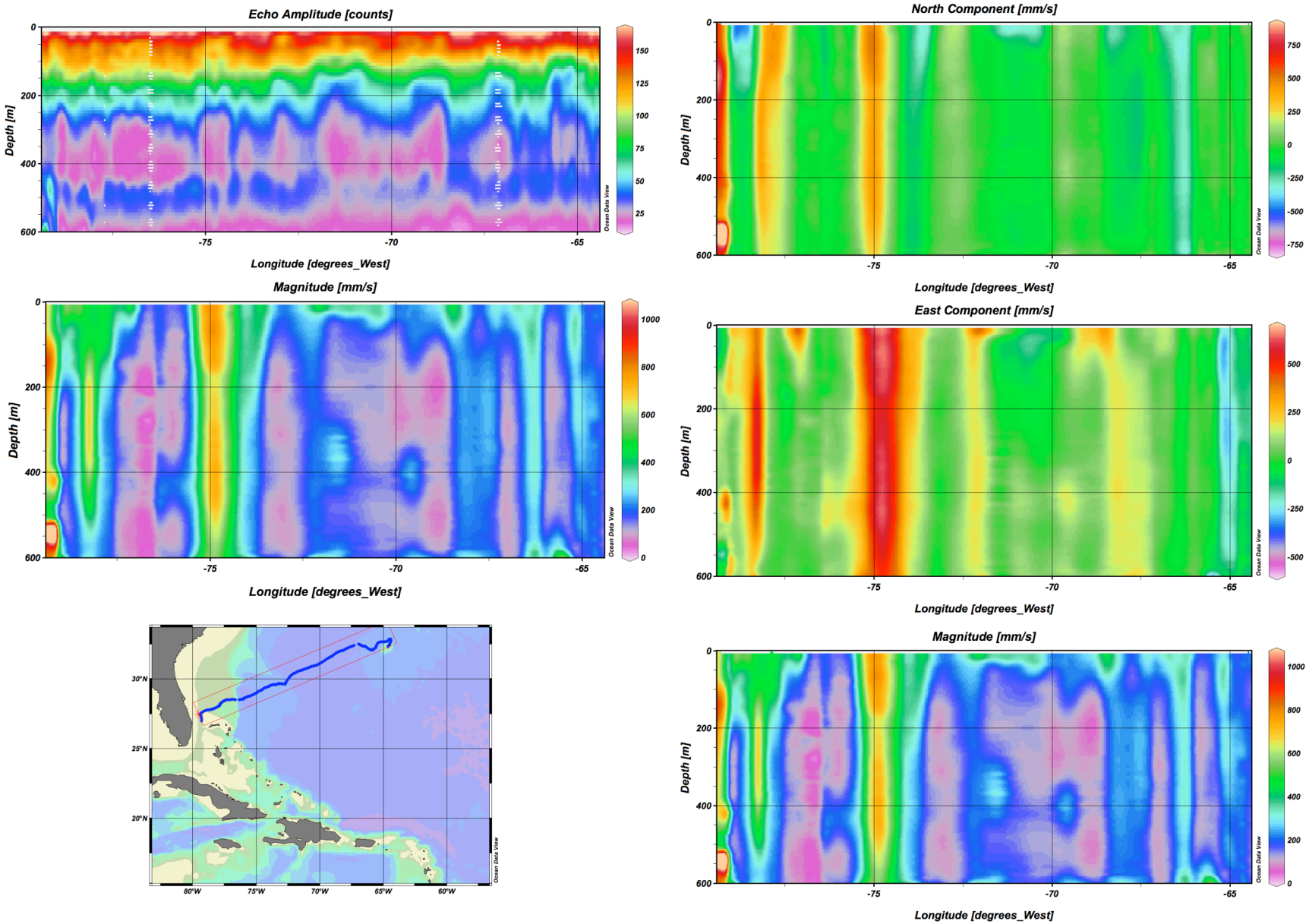


Figure 6. ADCP data along the transect from Bermuda to Antigua.

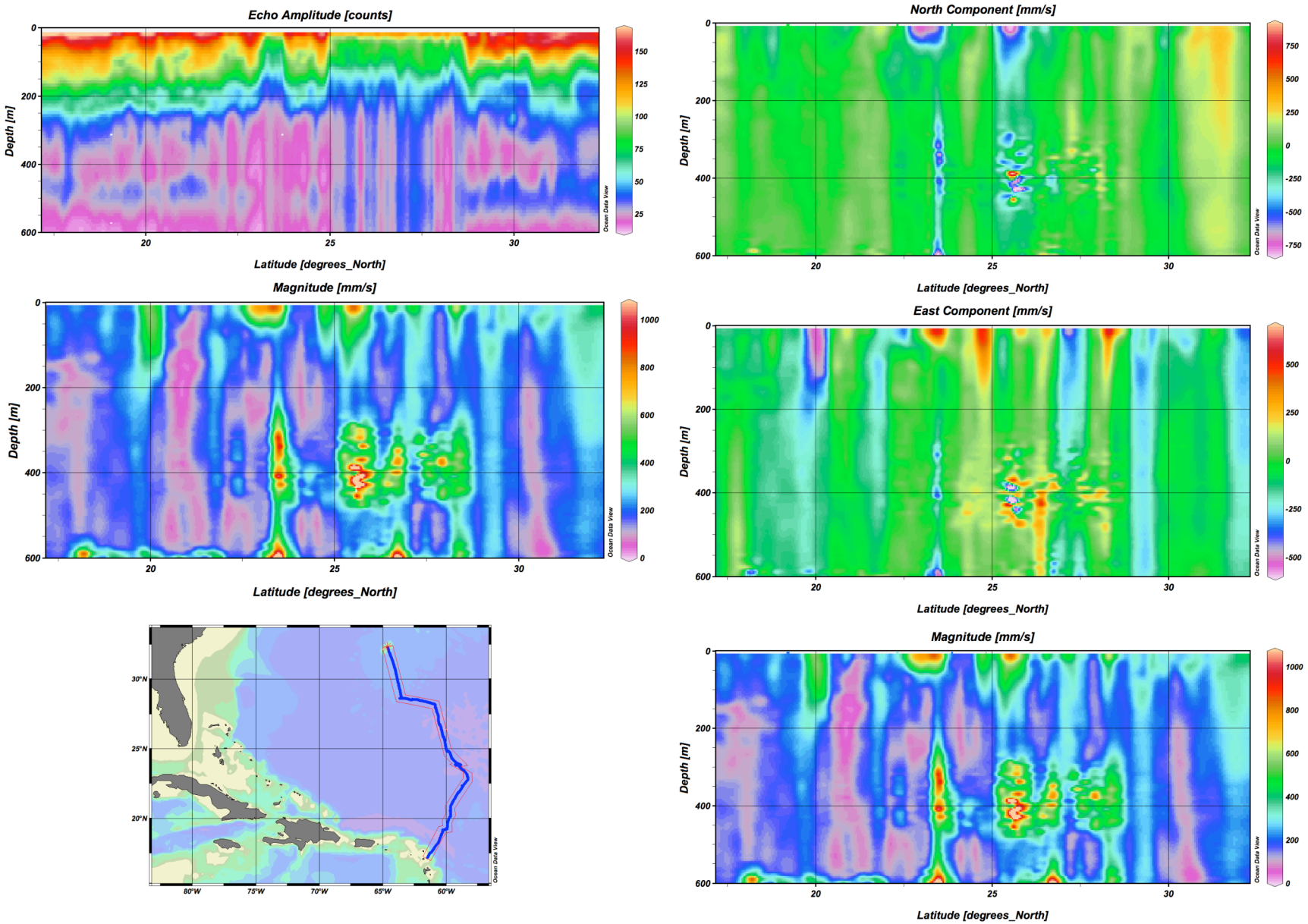


Table 7: Student Research Projects, C-210

Water Masses, Eddies, and Thermohaline Fronts in the Western Sargasso Sea: *A Physical Description*

by Morgan Fitzgerald, Charles Brieant, and Bradley Nicholson

Eighteen Degree Water: *Climate Characteristic Determined by Oxygen and Bacteria Population*
by Kaihoolulu Rickard and Miki Stein

Metabolic Activity and Population Density of *Sargassum* and its Epibionts in the Sargasso Sea
by Naomi Marshall and Chava Weitzman

Tell-Tale Snails: *Relating Pteropod Distribution to Oceanic Provinces and Chlorophyll-a Levels*
by Jessica Uze and Kate Letourneau

The Effects of Primary Productivity on Leptocephali Distribution
by Anne Handschy

Synechococcus Populations as a Cause for Whitings on Great Bahama Bank
by Dylan Leach

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